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Anacoronospora diversiseptata gen. & sp. nov. from Brazil

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Abstract — The hyphomycete *Anacoronospora diversiseptata*, collected from decaying leaves from Caatinga biome, Brazil, is described and illustrated as a new genus and species. It is distinguished by mono- and polyblastic conidiogenous cells with successive sympodial rectilinear or geniculate extension (sometimes delimited by one septum and followed by enteroblastic percurrent extension), which process is repeated several times. The conidia are oval to broad ellipsoidal, golden brown, and with a distoseptate main body, a subcylindrical or doliiform basal cell with 0–4 mammillate protuberances, and a crown-shaped euseptate apex with 3–4 divergent cylindrical branches.

Key words — asexual fungi, neotropic, taxonomy

Introduction

During a survey of hyphomycetes associated with plant litter from the semi-arid region of Bahia State, a fungus was collected that differs remarkably from all previously described genera (Seifert et al. 2011) and which we describe here as new. Caatinga ecosystems are unique to Brazil and, with only about 1% of the area under protection, are undoubtedly threatened. The type locality is a small remaining fragment of natural or semi-natural vegetation surrounded by farming and other developments. The discovery of this new genus here (and of others already collected by the authors, but as yet undescribed) suggests that the Caatinga may be as rich in fungi as in the many endemic animals and plants.

Materials & methods

Samples of litter (leaves and wood) were collected in paper bags for transport to the laboratory, where they were placed in Petri dish moist chambers and stored at 25°C for 30 days in a 170 L polystyrene box with 200 mL sterile water plus 2 mL glycerol (Castañeda-Ruiz 2005). Mounts were prepared in PVL (polyvinyl alcohol, lactic acid, and phenol) and measurements were made at a magnification of ×1000. Micrographs were obtained with an Olympus BX51 microscope equipped with bright field and Nomarski interference optics. The type specimens are deposited in the Herbarium of Universidade Estadual de Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Anacoronospora J.S. Monteiro, Gusmão & R.F. Castañeda, **gen. nov.**

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Differs from *Coronospora* by its successive enteroblastic percurrent regeneration after each holoblastic sympodial extension of the cicatrized conidiogenous cells and its distoseptate and euseptate conidia with small basal protuberances.

Type species: *Anacoronospora diversiseptata* J.S. Monteiro et al.

Etymology: Greek, *ana*-, meaning upwards; Latin *coronospora*, referring to the hyphomycete genus *Coronospora*.

Conidial fungi. Colonies on the natural substratum effuse, brown or dark brown. Mycelium partly superficial and immersed. Conidiophores distinct, single, unbranched, septate, brown or dark brown. Conidiogenous cells mono- and polyblastic, integrated, with enteroblastic percurrent regenerations and sympodial extensions. Conidiogenous loci evident, flattened, thick and black. Conidial secession schizolytic. Conidia solitary, at first acrogenous, later acropleurogenous, ovoid, ellipsoidal, with several short protuberances on the basal cell, distoseptate in the main body, crown-shaped at the apex, with several divergent, aseptate or euseptate branches, brown to dark brown.

Anacoronospora diversiseptata J.S. Monteiro, Gusmão & R.F. Castañeda

sp. nov. Figs 1–3

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Differs from all *Coronospora* spp. by its successive enteroblastic percurrent regenerations after each holoblastic sympodial extension of the conidiogenous cells and solitary disto- and euseptate, conidia with several short protuberances at the basal cell.

Type: Brazil, Bahia State: Abaíra, Distrito de Catolés, Mata do Coqueiro, 13°14′S 41°43′W, on decaying leaves of unidentified plant, 11.I.2015, coll. J.S. Monteiro (**Holotype**: HUEFS 215981).

Etymology: Latin, *diversi*-, meaning turned different ways, diverse, contrary, different; *septata*, referring to the septa.

Colonies on the natural substratum effuse, hairy, amphigenous, brown to dark brown. Mycelium mostly immersed. Conidiophores distinct, single,

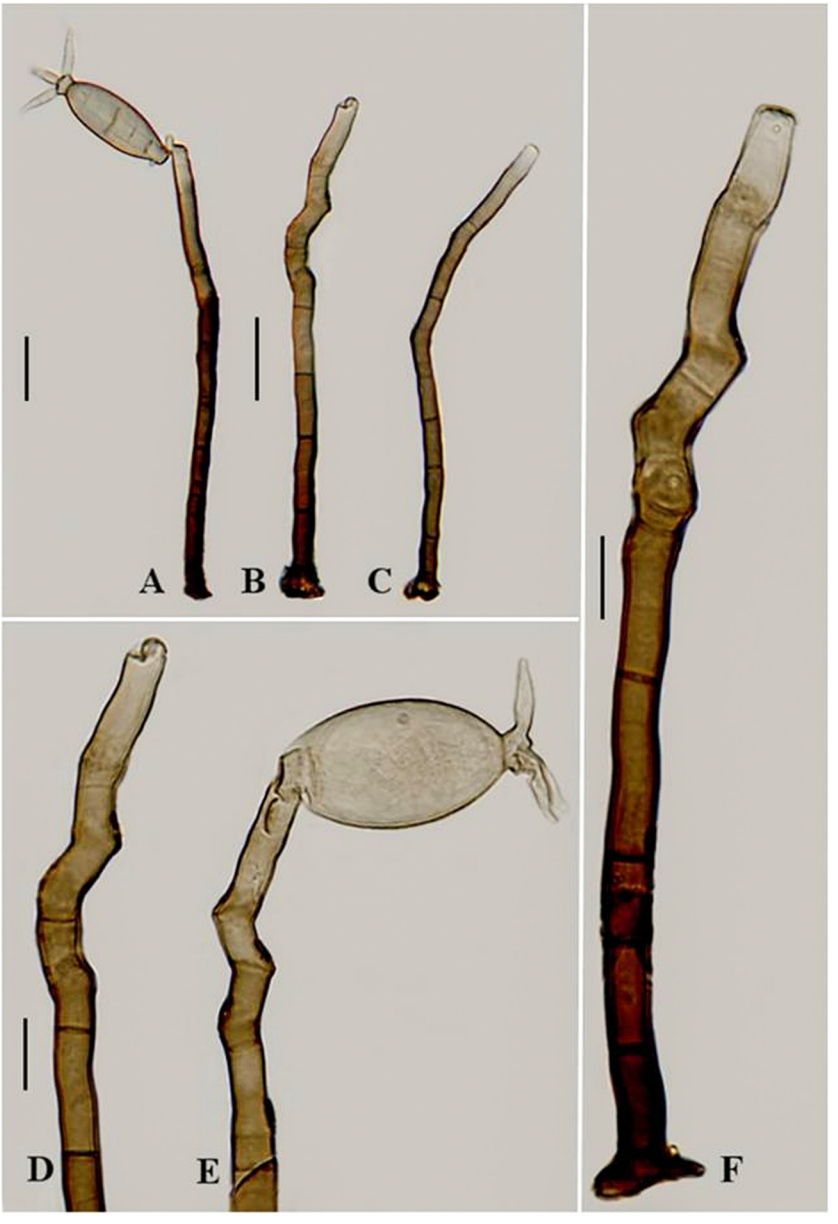

Fig. 1. *Anacoronospora diversiseptata* (ex holotype HUEFS 215981): A–C, conidiophores, conidiogenous cells, and conidium; D, E. conidiogenous cells and conidium; F. conidiophore and conidiogenous cells. Bars = 10 µm.

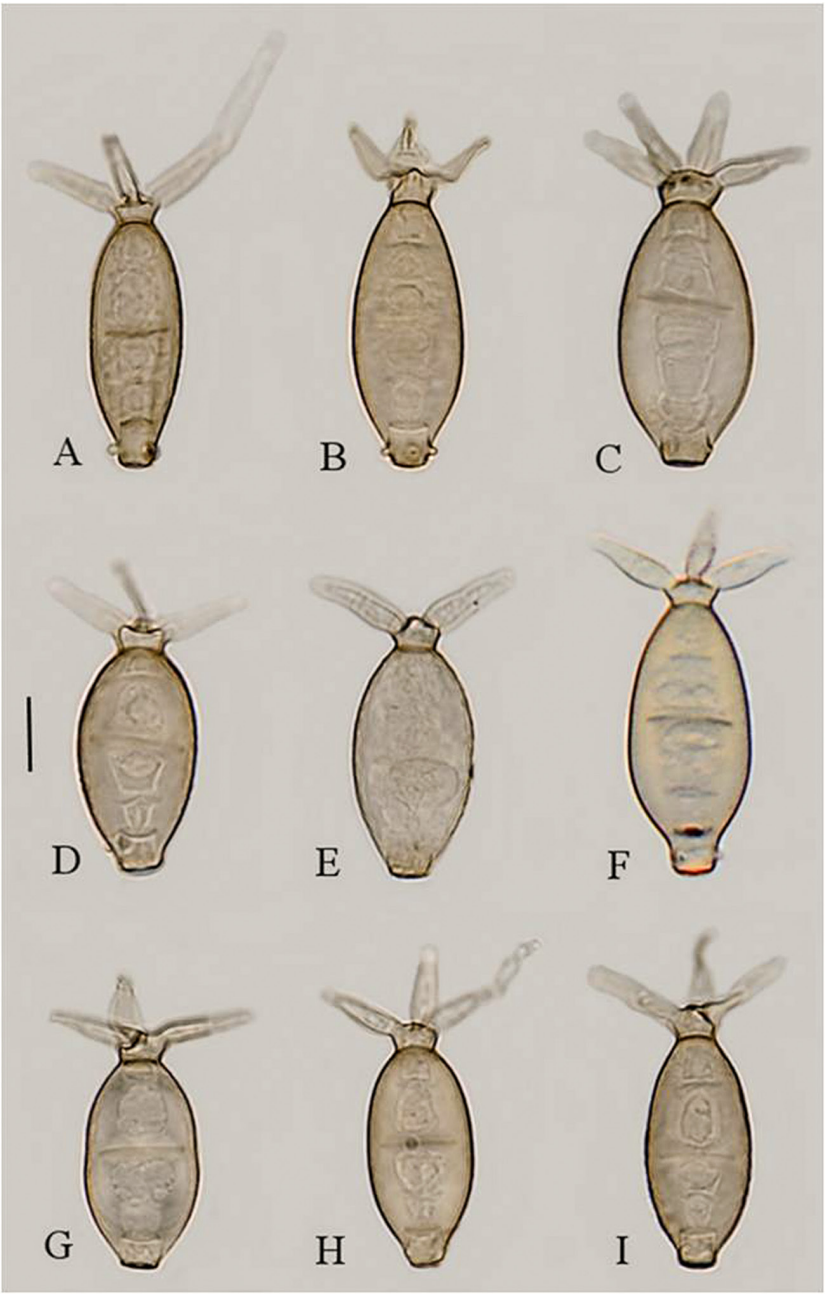

Fig. 2. *Anacoronospora diversiseptata* (ex holotype HUEFS 215981): Conidia. Bar = 10 µm.

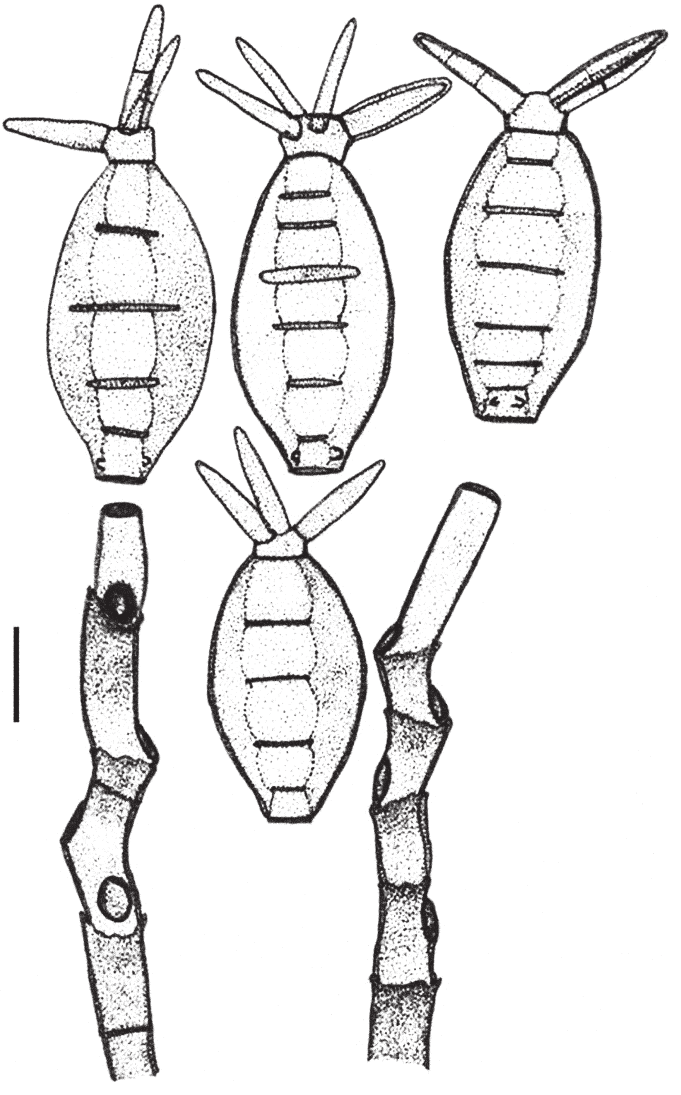

Fig. 3. *Anacoronospora diversiseptata* (ex holotype HUEFS 215981): Conidiogenous cells and conidia. Bar = 10 µm.

erect, straight or slightly geniculate toward the apex, with up to 7 percurrent regenerations, 5–10-septate, 70–150 × 5–7 µm, dark brown below, brown to pale brown toward the apex, somewhat fasciate after each enteroblastic regeneration,

smooth. Conidiogenous cells mono- and polyblastic, integrated, with enteroblastic percurrent regenerations and sympodial extensions, terminal at first with a single terminal conidiogenous locus, then indeterminate, with successive sympodial rectilinear or geniculate extension, sometimes delimited by one septum and followed by enteroblastic percurrent extension, being the same process repeated several times, producing terminal and intercalary conidiogenous loci. Conidiogenous loci cicatrized, flat, dark brown or black. Conidial secession schizolytic. Conidia solitary, acropleurogenous, 30–45 × 14–19 µm, ovoid to broad ellipsoidal, 4–5(–7)-distoseptate at the main body, golden brown, with subcylindrical, truncate, 5–6 µm wide, cicatrized basal cell, with 0–4 nipple-shaped protuberances radially arranged and crown-shaped, euseptate at the apex, with a cuneiform or doliiform apical cell from which arise 3–4 divergent, cylindrical, obtuse at the tip, 0–2-euseptate, pale golden brown appendages, 10–20 × 3–4 µm.

Comments — The ontogenetic pattern in *Anacoronospora* can be classified using the scheme for conidial development in Kirk et al. (2008). Conidial initiation is holoblastic, delimitation by one septum, secession schizolytic, maturation by diffuse wall-building, percurrent enteroblastic conidiogenous cell extension, followed by further conidial initiation by replacement of apical wall-building; melanized, with each successive conidium seceding before the next percurrent elongation of the conidiogenous cell, but sometimes holoblastic sympodial extension also occurs, producing two or more conidia. The combination of sympodial and enteroblastic percurrent extension and regeneration with flattened, thick, darkened conidiogenous loci in *Anacoronospora* separates it from *Coronospora* M.B. Ellis, in which cicatrized loci are produced after sympodial extensions of the polyblastic cicatrized conidiogenous cells disposed in geniculate conidiophores (Ellis 1971, 1976, Matsushima 1975, 1985, Zhang & Zhang 2004). Two described *Coronospora* species (Fig. 4), *C. novae-zelandiae* Matsush. and *C. uniseptata* Matsush., have denticulate, non-cicatrized conidiogenous loci, characters that deviate somewhat from those found in *Coronospora dendrocalami* M.B. Ellis (the type species) and *C. pallescens* Meng Zhang & T.Y. Zhang. Phylogenetic analysis is needed to elucidate the taxonomic position of *C. novae-zelandiae* and *C. uniseptata*.

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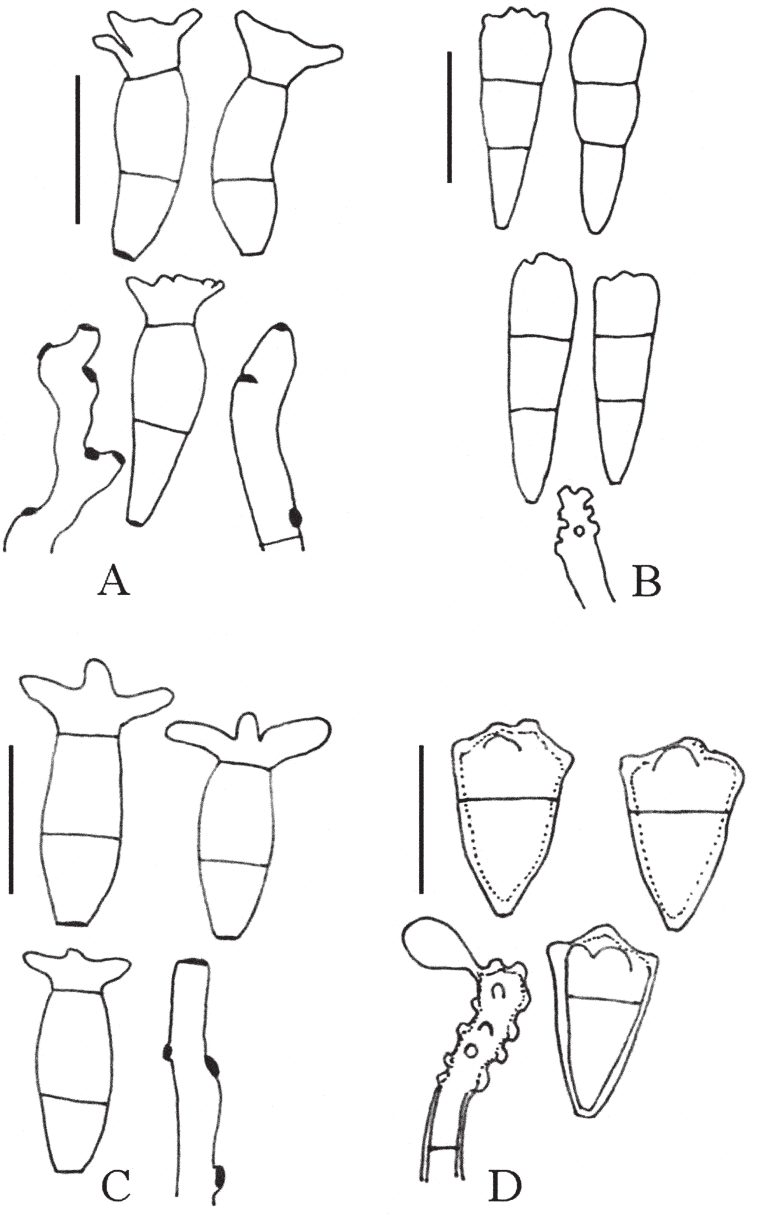

Fig. 4. Representative conidia of *Coronospora* spp. (redrawn from literature): A. *C. dendrocalami;* B. *C. novae-zelandiae;* C. *C. pallescens;* D. *C. uniseptata.* Bars = 20 μm.

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